

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

SUBJECT: Plug and Abandonment Procedure for Duffield Well # 11
EPA File # OS3545, Osage Petroleum Reserve
Location: NE/4 Section 3-T26N-R11E, Osage County, OK

Following is the plugging procedure for the subject well:

Capacities: 7" O.D. 24 #/ft casing, .2189 ft³/ft, .0390 bbls/ft
8 5/8" hole, .4057 ft³/ft, .0723 bbls/ft

Region 6 Environmental Protection Agency Staff will conduct a site visit to the abandoned well on xxxxx at xx:xx. Mr. Kent Sandborn of the Region 6 Staff will meet all contractors interested in viewing the site at the xxxxxx at the aforementioned time and date. Mr. Sandborn will address questions concerning the work to be done only during the site visit. Any questions or concerns prior to or after the visit should be addressed to Mr. Tyrone Hoskins. Mr. Hoskins can be reached at (214) 665-7375.

1. At least five working days prior to the plugging operation, notify Mr. Kent Sandborn at EPA's Pawhuska field office (918-557-1615) and notify Mr. Richard Winlock of the Bureau of Indian Affairs, Osage Agency (918-287-1351), so that a representative may be present to witness the plug and abandonment. The EPA or BIA witness may be required to modify the details of the plugging procedure based on the specific well bore conditions encountered during the plugging operation. This procedure is based on the condition of the well bore depicted by records on file. Cement should be Class "A" or Class "H" and have a yield of 1.18 ft³ per sack.
2. Unseat packer and pull 2 7/8" tubing and packer. The packer is set at approximately 270'.
3. Displace the casing string with 9 #/gallon mud to stabilize the hole.
4. A cement plug is required to be set from TD (405') to 305'. Wait on cement and tag top of cement plug. The cement plug can be tagged using tubing or wire-line.
5. Measure the free point of the 7" casing by pulling up on the casing, measure the stretch in inches and force in pounds (from the gauge on the rig) and calculate the free point.

$$\text{free point} = 15.5 \text{ \#/ft} * \text{stretch(inches)} * 735,000 / \text{force(lbs)}$$

The estimated top of cement is 177'; the 7" casing should be shot off as close to the free point as is possible. Pull the 7" casing.

6. Run tubing to the cut-off point of the 7" casing and place a cement plug from cut-off point to 3' below ground level. Wait on cement and then tag top of cement.
7. A 1/4" thick metal plate shall be set into the concrete and will contain the following inscription information: legal description, well name and number, Osage inventory number, and plugging date. The plate shall be welded in place.

Plate inscription:

NE/4 Section 3-T26N-R11E

Duffield No. 246A

Osage Inventory Number: OS3545

Date Well Plugged:

Note: The date inscribed on plate shall be the date the well was plugged and abandoned and shall be reported on Osage Form 139.

8. Working pit: If a working pit is required, a steel tank shall be used. This tank will be used as a working pit to catch any fluids circulated to the surface. The plugger is responsible for maintaining fluid level in the tank such that overflow does not occur. The tank is required to be emptied and the waste disposed of into an authorized facility.
9. Surface restoration: The surface of the lands disturbed in connection with the conduct of operations shall be restored. Soils removed in order to cut the surface casing 3 feet below ground level will be replaced and compacted. Recontouring a small area around the well bore may be necessary after the well is plugged.
10. The Contractor is responsible for the disposal of any casing and any other equipment salvaged in the plugging of this well. This material is to be removed from the site and/or lease prior to payment of the contract.
11. Within 30 days of completion of operations the contractor shall complete and submit an original and 4 copies of the plugging report (Osage Form 139) to the EPA Pawhuska office:

EPA Pawhuska Section
Osage Nations Federal Programs
627 Grandview Avenue
Pawhuska, OK 74056

One copy to the BIA office:

Bureau of Indian Affairs
Minerals Branch
P.O. Box 1539
Pawhuska, OK 74056

One copy to the Osage Agency:

Osage UIC Office
Osage Agency Campus
P.O. Box 1495
Pawhuska, OK 74056

Form 139 should summarize operations performed and include all pertinent dates and results of operations including depths and volume of cement plugs, casing cut-off point and any other pertinent information relating to the well plugging procedure.